

321 STAINLESS STEEL

UNS S32100



Type 321 is a stabilized austenitic stainless steel similar to Type 304 but with a titanium addition of at least five times the carbon content. This titanium addition reduces or prevents carbide precipitation during welding and in 800 - 1500°F (427 - 816°C) service. It also improves the elevated temperature properties of the alloy.

Type 321 provides excellent resistance to oxidation and corrosion and possesses good creep strength. It is used primarily in applications involving continuous and intermittent service temperatures within the carbide precipitation range of 800 - 1500°F (427 - 816°C).

Applications include annealing covers, high-temperature tempering equipment, diesel and heavy duty automotive exhaust systems, firewalls, stack liners, boiler casings, welded pressure vessels, jet aircraft components, radiant superheaters, bellows and oil refinery equipment.

COMPOSITION

	%
Carbon	0.08 max.
Manganese	2.00 max.
Phosphorus	0.045 max.
Sulfur	0.030 max.
Silicon	0.75 max.
Chromium	17.00-19.00
Nickel	9.00-12.00
Titanium	5 x (C + N) min., 0.70 max.
Nitrogen	0.10 max.
Iron	Balance

AVAILABLE FORMS

AK Steel produces Type 321 Stainless Steel in thicknesses from 0.01" to 0.25" (0.25 to 6.35 mm) max. and widths up to 48" (1219 mm). For other thicknesses and widths, inquire.

MECHANICAL PROPERTIES

Typical Room Temperature Properties

UTS ksi (MPa)	0.2% YS ksi (MPa)	Elongation % in 2" (50.8 mm)	Hardness Rockwell
90 (621)	40 (276)	45	B80

SPECIFICATIONS

Type 321 Stainless Steel is covered by the following specifications:

AMS 5510
ASTM A 240
MIL-S-6721

PHYSICAL PROPERTIES

Density, 0.29 lbs/in³
0.01 g/cm³

Electrical Resistivity, microhm-in
(microhm-cm)
68°F (20°C) – 28.4 (72)

Specific Heat, BTU/lb/°F (kJ/kg•K)
32 - 212°F (0-100°C) – 0.12 (0.50)

Thermal Conductivity, BTU/hr/ft²/ft/°F
(W/m•K)
at 212°F (100°C) – 9.3 (16.0)
at 932°F (500°C) – 12.8 (22.0)

